The Canadian Asthma Primary Prevention Study: Outcomes at 2 Years of Age


**Purpose of the Study.** To determine the effectiveness of a multifaceted intervention program in the primary prevention of asthma in high-risk infants.

**Study Population.** Subjects were children (n = 549) born between October 1994 and August 1996, classified as high-risk for development of asthma on the basis of family history.

**Methods.** A prospective, controlled clinical trial identified mothers in their third trimester of pregnancy and randomized each mother into either the multifaceted-intervention group (n = 278) or control group (n = 267). The intervention program was implemented during the first year of life and included decreasing allergen (dust mite and pet) and environmental tobacco-smoke exposure, encouraging breastfeeding, and delaying introduction of solid foods. The control group did not receive specific intervention education. Home visits conducted during the third trimester, at 2 weeks, and at 4, 8, 12, 18, and 24 months of age assessed health, demographic, and home characteristics, and dust samples were collected to quantify house dust-mite and cat-allergen levels. Infants in each group were evaluated and prick skin-tested for common food and environmental allergens at 12 months and 2 years of age. Study participants were assessed for possible asthma, probable asthma, recurrent wheeze, recurrent cough, rhinitis without colds, and atopy (defined as positive skin test to ≥1 allergen).

**Results.** In terms of intervention efficacy, there were significant differences in cat-allergen exposure (with no change in prevalence of pets) and day care enrollment between the groups. Asthma was characterized as the sum of possible and probable asthma diagnoses. At 2 years, 40 of 246 (16.3%) intervention children and 53 of 230 (23%) control children were classified as asthmatic. There was a significant reduction in persistent asthma (children meeting criteria for asthma at both 12 and 24 months of age), with only 4.9% of the intervention group versus 11.3% of the control group characterized as having persistent asthma. There was no difference between the groups in regard to recurrent cough and no difference in incidence in the first year of life of recurrent wheeze. However, at 2 years, there were significantly fewer children in the intervention group with recurrent wheeze (1%) versus the control group (3.5%). The prevalence of atopy at 2 years was not different between the intervention (15.6%) and control (13.7%) groups.

**Conclusions.** The multifaceted intervention program, which focused on decreasing exposure in the first year of life to aeroallergens, food allergens, and environmental tobacco smoke for children deemed to be at high risk for development of asthma, was successful in significantly reducing the incidence of asthma at 2 years of age.

**Reviewer’s Comments.** This study demonstrates that, in infants at high risk for developing asthma, reduction in allergen exposure and environmental modifications in the first year of life can significantly affect disease development and progression. Public health programs targeting these interventions may greatly impact the increasing prevalence and morbidity of childhood asthma.

Kelly Burks, MD
Stacie Jones, MD
Little Rock, AR
### The Canadian Asthma Primary Prevention Study: Outcomes at 2 Years of Age

Kelly Burks and Stacie Jones

*Pediatrics* 2005;116;537

DOI: 10.1542/peds.2005-0698C

<table>
<thead>
<tr>
<th>Updated Information &amp; Services</th>
<th>including high resolution figures, can be found at: /content/116/Supplement_2/537.1.full.html</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subspecialty Collections</td>
<td>This article, along with others on similar topics, appears in the following collection(s):</td>
</tr>
<tr>
<td></td>
<td><strong>International Child Health</strong> /cgi/collection/international_child_health_sub</td>
</tr>
<tr>
<td></td>
<td><strong>Asthma</strong> /cgi/collection/asthma_sub</td>
</tr>
<tr>
<td>Permissions &amp; Licensing</td>
<td>Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: /site/misc/Permissions.xhtml</td>
</tr>
<tr>
<td>Reprints</td>
<td>Information about ordering reprints can be found online: /site/misc/reprints.xhtml</td>
</tr>
</tbody>
</table>

PEDIATRICS is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. PEDIATRICS is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2005 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 0031-4005. Online ISSN: 1098-4275.
The Canadian Asthma Primary Prevention Study: Outcomes at 2 Years of Age
Kelly Burks and Stacie Jones

Pediatrics 2005;116;537
DOI: 10.1542/peds.2005-0698C

The online version of this article, along with updated information and services, is located on the World Wide Web at:
/content/116/Supplement_2/537.1.full.html